



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,285	07/18/2003	Subhajit Dasgupta	42P17398	4597

8791 7590 10/14/2005

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

SORRELL, ERON J

ART UNIT PAPER NUMBER

2182

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,285

Applicant(s)

DASGUPTA ET AL.

Examiner

Eron J. Sorrell

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/18/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

PD

DETAILED ACTION

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 28 contains the trademark/trade name "Ethernet." Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to

Art Unit: 2182

identify/describe a high-speed LAN protocol and, accordingly, the identification/description is indefinite.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 7, 8, 11-14, 19-21, 23, 24, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Wageningen et al. (US Pub. No. 2003/0152082 hereinafter Van Wageningen).

6. Referring to claim 1, Van Wageningen teaches an apparatus, comprising:

a plurality of flow controllable queues containing data to be transmitted, wherein the flow controllable queues are organized by flow (see figure 3 and paragraph 39 on page 3);

Art Unit: 2182

a plurality of destinations to receive data from the plurality of flow controllable queues (see paragraph 39 on page 3, wherein Van Wageningen discloses "output ports"); and

a controller to continually maintain an aggregate count of data ready for transmission to the destinations and determine next queue to transmit data from based at least partially on the aggregate counts (see paragraphs 43-46 on page 3, wherein Van Wageningen discloses the functions of the arbiter).

7. Referring to claim 2, Van Wageningen teaches the flow includes at least some subset of source, destination, protocol, and class of service (see paragraph 39 on page 3).

8. Referring to claim 3, Van Wageningen teaches the data is ready for transmission if the associated flow controllable queue is flow controlled (see paragraph 46 on page 3).

9. Referring to claim 4, Van Wageningen teaches the count for a particular destination includes flow controllable queues associated with the particular destination (see paragraph 45 on page 3).

Art Unit: 2182

10. Referring to claims 5 and 21, Van Wageningen teaches the next queue is one of the flow controllable queues associated with the destination having biggest aggregate count (see paragraphs 79 and 80 on page 5).

11. Referring to claim 7,8,11, and 12 Van Wageningen teaches the aggregate count for a specific destination is updated to add data queued when data is added to an associated flow controllable queue and the aggregate count for a specific destination is updated to remove data de-queued when data is removed from an associated flow controllable queue (see paragraphs 43-46 on page 3).

12. Referring to claim 13, Van Wageningen teaches the controller updates the aggregate counts each clock cycle to account for changes made to the associated flow controllable queues during that clock cycle (see paragraph 9 on page 1).

13. Referring to claim 14, Van Wageningen teaches the controller updates the aggregate count for a specific destination by adding data queued in a first associated flow controllable queue and subtracting data de-queued from a second associated flow controllable queue if the queuing and the de-

Art Unit: 2182

queuing occurred during the same clock cycle (see paragraph 9 on page 1).

14. Referring to claim 19, Van Wageningen teaches a method, comprising:

creating a plurality of queues based on at least some subset of source, destination, protocol, and class of service (see paragraph 39 on page 3);

storing data received in a first one of the plurality of queues based on the flow of the data (see paragraphs 43-46 on page 3);

removing data transmitted from a second one of the plurality of queues (see paragraphs 43-46 on page 3); and

maintaining a continuous aggregate count of data eligible for transmission to the destinations (see paragraphs 43-46 on page 3);

selecting a next queue to transmit data from based at least in part on the aggregate counts (see paragraphs 43-46 on page 3).

15. Referring to claim 20, Van Wageningen teaches the aggregate count for a particular destination includes queues associated

Art Unit: 2182

with the particular destination (see paragraphs 43-46 on page 3).

16. Referring to claims 23 and 24, Van Wageningen teaches the maintaining includes adding data queued to an associated queue, removing data de-queued from an associated queue (see paragraphs 43-46 on page 3).

17. Referring to claim 27, Van Wageningen teaches the maintaining includes updating the count each clock cycle to reflect any combination of data being added, data being removed, and flow control change made to associated queues during that clock cycle (see paragraph 9 on page 1).

*Claim Rejections - 35 USC § 103*

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



Art Unit: 2182

19. Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Oelke et al. (U.S. Pub. No. 2003/0200330 hereinafter "Oelke").

20. Referring to claim 28, Van Wageningen teaches a store and forward device comprising:

a plurality of line cards to receive, store, and transmit data, wherein the plurality of line cards includes a plurality of queues (see paragraphs 37-39 on page 3);

a processor to maintain a continuous aggregate count of amount of data queued for the egress ports (see paragraphs 43-46 on page 3); and

a scheduler to determine a next queue to service based at least in part on the aggregate counts (see paragraphs 43-46 on page 3).

Van Wageningen is silent on the line cards being Ethernet line cards including a plurality of ingress ports and a plurality of egress ports and a backplane to connect the plurality of line cards together.

Oelke teaches in an analogous system the above limitations (see paragraphs 18 and 19 on page 2).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the

Art Unit: 2182

device of Van Wageningen with the above teachings of Oelke. One of ordinary skill in the art would have been motivated to make such modification because Ethernet is a well known and widely used LAN protocol that supports high bandwidth data transfers and backplanes allows multiple cards to be connected to a common power supply.

21. Referring to claim 29, Van Wageningen teaches the scheduler selects the next queue based on the egress port having highest aggregate count (see paragraphs 79 and 80 on page 5).

22. Referring to claims 30, Van Wageningen teaches the scheduler selects the next queue per ingress port based on the associated egress port having highest aggregate count (see paragraphs 79 and 80 on page 5).

23. Referring to claim 31 Van Wageningen teaches, the processor maintains the aggregate count by updating the count each clock cycle to reflect any combination of data being added, data being removed, and flow control change made to the associated queues during that clock cycle (see paragraph 9 on page 1).

Art Unit: 2182

24. Claims 9,10,15-18,25,26, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Ahlfors et al. (US Pub. No. 2002/0126683 hereinafter "Ahlfors").

25. Referring to claims 9,10,25, and 26, Van Wageningen fails to teach the aggregate count for a specific destination is updated to remove data associated with a flow controllable queue if the flow control for the associated flow controllable queue is deactivated and the aggregate count for a specific destination is updated to add data associated with a flow controllable queue if the flow control for the associated flow controllable queue is activated.

Ahlfors teaches, in an analogous system, updating a counter when a flow control for a flow controllable queue is activated or deactivated (see paragraph 42 on page 2).

It would have been obvious to one ordinary skill in the art at the time of the applicant's invention to modify the method of Van Wageningen with the above teachings of Ahlfors. One of ordinary skill in the art would have been motivated to make such modification in provide priority treatment of queues, with fairness with regard to varying packet lengths with avoiding burstiness as suggested by Ahlfors (see abstract).

Art Unit: 2182

26. Referring to claims 15-18, Van Wageningen teaches adding and/or subtracting values of counters subsequent to queuing and/or de-queuing of data during the same clock cycle (see paragraph 9 on page 1). Van Wageningen fails to teach adding and/or subtracting values from counters when queues become activated to deactivated.

Ahlfors teaches, in an analogous system, updating a counter when a flow control for a flow controllable queue is activated or deactivated (see paragraph 42 on page 2).

It would have been obvious to one ordinary skill in the art at the time of the applicant's invention to modify the method of Van Wageningen with the above teachings of Ahlfors. One of ordinary skill in the art would have been motivated to make such modification in provide priority treatment of queues, with fairness with regard to varying packet lengths with avoiding burstiness as suggested by Ahlfors (see abstract).

27. Referring to claim 32, Van Wageningen teaches an apparatus, comprising:

a plurality of ingress ports (see items 1 and 2 in figure 1), wherein each ingress port includes flow controllable queues

Art Unit: 2182

to hold data, wherein the data is organized in the queues at least by destination (see paragraphs 37-39 on page 3).

a plurality of egress ports (see items 1 and 2 in figure 1), wherein each egress port is capable of receiving data from the queues and controlling the flow of data from the queues to itself (see paragraphs 37-39 of page 3); and

a controller to maintain (see paragraphs 39-40 on page 3), for each egress port, a continuous aggregate count of data in each of the queues that is associated with the egress port and to determine which queue to transmit data from based at least partially on the aggregate counts (see paragraph 43-46 on page 3).

Van Wageningen fails to teach the limitations of turning the flow control on or off for a queue.

Ahlfors teaches, in an analogous system, turning on and off the flow control to queues by activating or deactivating the queue (see paragraphs 29-32 of page 2).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus of Van Wageningen with the above teachings of Ahlfors. One of ordinary skill in the art would have been motivated to make such modification in order to enable priority treatment of

Art Unit: 2182

queues, fairness in regards to varying packet lengths and avoiding burstiness as suggested by Ahlfors (see abstract).

28. Referring to claim 33, Van Wageningen teaches the maintaining includes updating the count each clock cycle to reflect any combination of data being added, data being removed, and flow control change made to associated queues during that clock cycle (see paragraph 9 on page 1).

29. Referring to claim 24, Van Wageningen teaches the scheduler selects the next queue based on the egress port having highest aggregate count (see paragraphs 79 and 80 on page 5).

30. Claims 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Wageningen in view of Woo et al. (U.S. Pub. No. 2003/0112817 hereinafter "Woo").

31. Referring to claims 6 and 22, Van Wageningen fails to teach the aggregate count is a number of bytes.

Woo teaches, in an analogous system, the above limitation (see paragraphs 65-67 on page 7).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the

Art Unit: 2182

method and system of Van Wageningen with the above teachings of Woo. One of ordinary skill in the art would have been motivated to make such modification in order to implement a byte fairness algorithm as suggested by Woo (see paragraphs 65-67 on page 7).

*Response to Arguments*

32. Applicant's arguments filed 8/1/05 have been fully considered but they are not persuasive. The applicant argues:

1) "Ethernet" represents a definite good (a card accepting data having a particular protocol) and is clearly not limited to the source of the goods and as such is definite (see 2<sup>nd</sup> paragraph of page 8).

2) Van Wageningen fails to teach the limitation of "maintaining a continuous aggregate count of data ready of data ready for transmission to destinations." (see the first full paragraph of page 9, similar arguments are reiterated at 4<sup>th</sup> paragraph of page 11, first paragraph of page 13, and first paragraph of page 14);

3) Van Wageningen fails to teach the limitation of claim 13, "wherein said controller updates the aggregate counts each clock cycle to account for changes made to associated flow

Art Unit: 2182

controllable queues during that clock cycle (see 2<sup>nd</sup> paragraph of page 10);" and

4) the combination of Van Wageningen and Ahlfors et al. fails to teach the limitations of updating the aggregate counts to add or remove data associated with queues that have had there respective flow controls activated or deactivated (see 4<sup>th</sup> paragraph pf page 12).

As per argument 1, the Examiner disagrees. MPEP 2173.05(u) states, "If the trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of the 35 U.S.C. 112, second paragraph. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade



Art Unit: 2182

name." The Examiner suggests using generic terminology in the claims such as "high-speed LAN protocol" and give Ethernet as an example in the specification.

As per argument 2, the Examiner disagrees. Claim 1 recites "a controller to continuously maintain an aggregate count of data ready for transmission to the destinations..." At paragraph 43, on page 3, Van Wageningen teaches weightings are sent to the arbiter. At paragraph 20, on page 2, Van Wageningen teaches, the weightings for each queue are based, in part, on the size of the queue (i.e. the number of transmissions, or the count). At paragraph 19, Van Wageningen teaches "a Table is created separately for each arbiter with the weightings already transmitted to this arbiter for each output port. The Table contains the weightings known by the arbiter." These citations show the arbiter stores (maintains) a table with aggregate counts for data ready for transmission. At paragraph 40, on page 3, Van Wageningen teaches "the arbiter of each switch card calculates at regular intervals, known as clock cycles, an optimum configuration of the crosspoint matrix... The arbiter contains all the current weightings received by the arbiter." These citations teach the count information is continuously maintained (i.e. updates occur every clock cycle).

As per argument 3, the Examiner disagrees. Van Wageningen teaches a number of amended weightings may be transmitted, but the number that can be is limited (e.g. 2) (see paragraph 9 on page 1). Van Wageningen also teaches there can be zero amended weightings to transfer in a clock cycle (see paragraph 15 on page 1). These citations show that the number of amended weightings that can be sent in any given clock cycle is greater than zero, but less than the limit. When there is just one amended weighting to transmit, which falls within the identified range, Van Wageningen teaches the limitation of "wherein said controller updates the aggregate counts each clock cycle to account for changes made to associated flow controllable queues during that clock cycle."

As per argument 4, the Examiner disagrees. Ahlfors teaches flow controlled queues that can be activated and deactivated, meaning the queue is not permitted to send data, regardless of the amount of data in the queue (see paragraphs 29-32 on page 2). Van Wageningen teaches transmitting amended weightings to a controller to reflect changes in the size of the queues (the count) (see paragraph 12 on page 1). Modifying the teachings of Van Wageningen with the teachings of Ahlfors would result in a

Art Unit: 2182

system in which a count is maintained for each queue representing the amount of data to be transmitted. If a queue becomes activated or deactivated, the count would represent that change. One of ordinary skill in the art would have been motivated to make such modification in provide priority treatment of queues, with fairness with regard to varying packet lengths with avoiding burstiness, as suggested by Ahlfors (see abstract).

### *Conclusion*

33. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

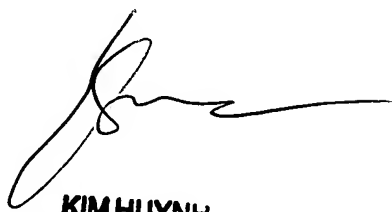
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J. Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-271-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS  
October 11, 2005

  
**KIM HUYNH**  
**PRIMARY EXAMINER**  
10/11/05